

SEQUENCE LISTING

<110> BIOGEN, INC
BROWNING, Jeffrey

<120> BMOG, A Novel Protein Member of the
Myelin-Oligodendrocyte Glycoprotein Family and Its Use for
Immunomodulatory Purposes

<130> A041 US

<140> 09/560,855

<141> 2000-04-28

<150> PCT/US98/23826

<151> 1998-11-05

<150> 60/064761

<151> 1997-11-07

<160> 20

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<211> 671

<212> DNA

<213> Homo sapien

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120

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180

gctccttcaa tgccagccaa gggagactgg ccattggctc cgtcacgtgg ttccgagatg
240

aggtggttcc agggaaggag gtgaggaatg gaaccccaga gttcaggggc gcctggcccc
300

acttgcttct tcccgtttcc tccatgacca ccaggctgag ctgcacatcc gggacgtgcg
360

aggccatgac gccagcatct acgtgtgcag agtggaggtg ctgggccttg gtgtcgggac
420

agggaatggg actcggctgg tggtggagaa agaacatcct cagctagggg ctggtacagt
480

cctcctcctt cgggctggat tctatgctgt cagctttctc tctgtggccg tgggcagcac
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A041us.txt

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 671

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 gctccttcaa tgccagccaa gggagactgg ccattggctc cgtcacgtgg ttccgagatg
 240
 aggtggttcc aggggaaggag gtgaggaatg gaaccccaga gttcaggggc gctggcccc
 300
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 360
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 420
 agggaatggg actcggctgg tggaggagaa agaacatcct cagctagggg ctggtacagt
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A041us.txt

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240
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360
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420
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834

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<210> 4

<211> 190

<212> PRT

<213> Homo sapien

<400> 4

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Cys Ala Leu Trp Val Ser Gln Pro Pro Glu Ile Arg Thr Leu Glu Gly
 20          25          30
Ser Ser Ala Phe Leu Pro Cys Ser Phe Asn Ala Ser Gln Gly Arg Leu
 35          40          45
Ala Ile Gly Ser Val Thr Trp Phe Arg Asp Glu Val Val Pro Gly Lys
 50          55          60
Glu Val Arg Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu
 65          70          75          80
Ala Ser Ser Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg
 85          90          95
Asp Val Arg Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Val
100          105          110
Leu Gly Leu Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu
115          120          125
Lys Glu His Pro Gln Leu Gly Ala Gly Thr Val Leu Leu Leu Arg Ala
130          135          140

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A041us.txt

Gly	Phe	Tyr	Ala	Val	Ser	Phe	Leu	Ser	Val	Ala	Val	Gly	Ser	Thr	Val
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Tyr	Tyr	Gln	Gly	Lys	Cys	His	Cys	His	Met	Gly	Thr	His	Cys	His	Ser
				165					170					175	
Ser	Asp	Gly	Pro	Arg	Gly	Val	Ile	Pro	Glu	Pro	Arg	Cys	Pro		
			180					185					190		

<210> 5

<211> 177

<212> PRT

<213> Homo sapien

<400> 5

Met	Ala	Trp	Met	Leu	Leu	Leu	Ile	Leu	Ile	Met	Val	His	Pro	Gly	Ser
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Cys	Ala	Leu	Trp	Val	Ser	Gln	Pro	Pro	Glu	Ile	Arg	Thr	Leu	Glu	Gly
			20					25					30		
Ser	Ser	Ala	Phe	Leu	Pro	Cys	Ser	Phe	Asn	Ala	Ser	Gln	Gly	Arg	Leu
		35					40					45			
Ala	Ile	Gly	Ser	Val	Thr	Trp	Phe	Arg	Asp	Glu	Val	Val	Pro	Gly	Lys
	50					55					60				
Glu	Val	Arg	Asn	Gly	Thr	Pro	Glu	Phe	Arg	Gly	Arg	Leu	Ala	Pro	Leu
65					70					75					80
Ala	Ser	Ser	Arg	Phe	Leu	His	Asp	His	Gln	Ala	Glu	Leu	His	Ile	Arg
				85					90					95	
Asp	Val	Arg	Gly	His	Asp	Ala	Ser	Ile	Tyr	Val	Cys	Arg	Val	Glu	Val
			100					105					110		
Leu	Gly	Leu	Gly	Val	Gly	Thr	Gly	Asn	Gly	Thr	Arg	Leu	Val	Val	Glu
			115				120					125			
Lys	Glu	His	Pro	Gln	Leu	Gly	Ala	Gly	Thr	Val	Leu	Leu	Leu	Arg	Ala
	130					135					140				
Gly	Phe	Tyr	Ala	Val	Ser	Phe	Leu	Ser	Val	Ala	Val	Gly	Ser	Thr	Val
145					150					155					160
Tyr	Tyr	Gln	Gly	Lys	Tyr	Ala	Lys	Ser	Thr	Leu	Ser	Gly	Phe	Pro	Gln
				165					170					175	

Leu

<210> 6

<211> 201

<212> PRT

<213> Homo sapien

<400> 6

Met	Ala	Trp	Met	Leu	Leu	Leu	Ile	Leu	Ile	Met	Val	His	Pro	Gly	Ser
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Cys	Ala	Leu	Trp	Val	Ser	Gln	Pro	Pro	Glu	Ile	Arg	Thr	Leu	Glu	Gly
			20					25					30		
Ser	Ser	Ala	Phe	Leu	Pro	Cys	Ser	Phe	Asn	Ala	Ser	Gln	Gly	Arg	Leu
		35					40					45			
Ala	Ile	Gly	Ser	Val	Thr	Trp	Phe	Arg	Asp	Glu	Val	Val	Pro	Gly	Lys

A041us.txt

50		55		60
Glu Val Arg Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu				
65		70		75
Ala Ser Ser Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg				80
	85		90	95
Asp Val Arg Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Val				
	100		105	110
Leu Gly Leu Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu				
	115		120	125
Lys Glu His Pro Gln Leu Gly Ala Gly Thr Val Leu Leu Arg Ala				
	130		135	140
Gly Phe Tyr Ala Val Ser Phe Leu Ser Val Ala Val Gly Ser Thr Val				
145		150		155
Tyr Tyr Gln Gly Lys Cys Leu Thr Trp Lys Gly Pro Arg Arg Gln Leu				
	165		170	175
Pro Ala Val Val Pro Ala Pro Leu Pro Pro Pro Cys Gly Ser Ser Ala				
	180		185	190
His Leu Leu Pro Pro Val Pro Gly Gly				
	195		200	

<210> 7

<211> 185

<212> PRT

<213> Homo sapien

<400> 7

Met Ala Trp Met Leu Leu Leu Ile Leu Ile Met Val His Pro Gly Ser				
1	5		10	15
Cys Ala Leu Trp Val Ser Gln Pro Pro Glu Ile Arg Thr Glu Gly Ser				
	20		25	30
Ser Ala Phe Leu Pro Cys Ser Phe Asn Ala Ser Gln Gly Arg Leu Ala				
	35		40	45
Ile Gly Ser Val Thr Trp Phe Arg Asp Glu Val Val Pro Gly Lys Glu				
	50		55	60
Val Arg Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu Ala				
65		70		75
Ser Ser Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg Asp				
	85		90	95
Val Arg Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Leu Gly				
	100		105	110
Leu Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu Lys Glu				
	115		120	125
His Pro Gln Leu Gly Ala Gly Thr Val Leu Leu Leu Arg Ala Gly Phe				
	130		135	140
Tyr Ala Val Ser Phe Leu Ser Val Ala Val Gly Ser Thr Val Tyr Tyr				
145		150		155
His Gly Lys Cys His Cys His Met Gly Thr His Cys His Ser Ser Asp				
	165		170	175
Gly Val Ile Pro Glu Pro Arg Cys Pro				
	180		185	

A041us.txt

<210> 8
 <211> 175
 <212> PRT
 <213> Homo sapien

<400> 8
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 20 25 30
 Ser Ala Phe Leu Pro Cys Ser Phe Asn Ala Ser Gln Gly Arg Leu Ala
 35 40 45
 Ile Gly Ser Val Thr Trp Phe Arg Asp Glu Val Val Pro Gly Lys Glu
 50 55 60
 Val Arg Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu Ala
 65 70 75 80
 Ser Ser Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg Asp
 85 90 95
 Val Arg Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Leu Gly
 100 105 110
 Leu Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu Lys Glu
 115 120 125
 His Pro Gln Leu Gly Ala Gly Thr Val Leu Leu Leu Arg Ala Gly Phe
 130 135 140
 Tyr Ala Val Ser Phe Leu Ser Val Ala Val Gly Ser Thr Val Tyr Tyr
 145 150 155 160
 His Gly Lys Tyr Ala Lys Ser Thr Leu Ser Gly Phe Pro Gln Leu
 165 170 175

<210> 9
 <211> 198
 <212> PRT
 <213> Homo sapien

<400> 9
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 1 5 10 15
 Cys Ala Leu Trp Val Ser Gln Pro Pro Glu Ile Arg Thr Glu Gly Ser
 20 25 30
 Ser Ala Phe Leu Pro Cys Ser Phe Asn Ala Ser Gln Gly Arg Leu Ala
 35 40 45
 Ile Gly Ser Val Thr Trp Phe Arg Asp Glu Val Val Pro Gly Lys Glu
 50 55 60
 Val Arg Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu Ala
 65 70 75 80
 Ser Ser Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg Asp
 85 90 95
 Val Arg Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Leu Gly
 100 105 110
 Leu Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu Lys Glu
 115 120 125

A041us.txt

His Pro Gln Leu Gly Ala Gly Thr Val Leu Leu Leu Arg Ala Gly Phe
 130 135 140
 Tyr Ala Val Ser Phe Leu Ser Val Ala Val Gly Ser Thr Val Tyr Tyr
 145 150 155 160
 His Gly Lys Cys Leu Thr Trp Lys Gly Pro Arg Arg Leu Pro Ala Val
 165 170 175
 Val Pro Ala Pro Leu Pro Pro Pro Cys Gly Ser Ser Ala His Leu Leu
 180 185 190
 Pro Pro Val Pro Gly Gly
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<210> 10
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 <212> PRT
 <213> Homo sapien

<400> 10
 Met Ala Trp Met Leu Leu Leu Ile Leu Ile Met Val His Pro Gly Ser
 1 5 10 15
 Cys Ala Leu Trp Val Ser Gln Pro Pro Glu Ile Arg Thr Leu Glu Gly
 20 25 30
 Ser Ser Ala Phe Leu Pro Cys Ser Phe Asn Ala Ser Gln Gly Arg Leu
 35 40 45
 Ala Ile Gly Ser Val Thr Trp Phe Arg Asp Glu Val Val Pro Gly Lys
 50 55 60
 Glu Val Arg Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu
 65 70 75 80
 Ala Ser Ser Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg
 85 90 95
 Asp Val Arg Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Leu
 100 105 110
 Gly Leu Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu Lys
 115 120 125
 Glu His Pro Gln Leu Gly Ala Gly Thr Val Leu Leu Leu Arg Ala Gly
 130 135 140
 Phe Tyr Ala Val Ser Phe Leu Ser Val Ala Val Gly Ser Thr Val Tyr
 145 150 155 160
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<210> 11
 <211> 185
 <212> PRT
 <213> Homo sapien

<400> 11
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 Leu Leu Leu Leu Leu Leu Gln Val Ser Ser Ser Tyr Ala Gly Gln Phe
 20 25 30
 Arg Val Ile Gly Pro Arg His Pro Ile Arg Ala Leu Val Gly Asp Glu

A041us.txt

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Val	Glu	Leu	Pro	Cys	Arg	Ile	Ser	Pro	Gly	Lys	Asn	Ala	Thr	Gly	Met		
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Glu	Val	Gly	Trp	Tyr	Arg	Pro	Pro	Phe	Ser	Arg	Val	Val	His	Leu	Tyr		
65					70					75					80		
Arg	Asn	Gly	Lys	Asp	Gln	Asp	Gly	Asp	Gln	Ala	Pro	Glu	Tyr	Arg	Gly		
				85					90					95			
Arg	Thr	Glu	Leu	Leu	Lys	Asp	Ala	Ile	Gly	Glu	Gly	Lys	Val	Thr	Leu		
			100					105					110				
Arg	Ile	Arg	Asn	Val	Arg	Phe	Ser	Asp	Glu	Gly	Gly	Phe	Thr	Cys	Phe		
		115					120					125					
Phe	Arg	Asp	His	Ser	Tyr	Gln	Glu	Glu	Ala	Ala	Met	Glu	Leu	Lys	Val		
	130					135					140						
Glu	Asp	Pro	Phe	Tyr	Trp	Val	Glu	Asp	Pro	Phe	Tyr	Trp	Val	Ser	Pro		
145					150					155					160		
Gly	Val	Leu	Val	Leu	Leu	Ala	Val	Leu	Pro	Val	Leu	Leu	Leu	Gln	Ile		
				165					170					175			
Thr	Val	Gly	Leu	Val	Phe	Leu	Cys	Leu									
			180					185									

<210> 12
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 <212> PRT
 <213> Rat

<400> 12

Met	Ala	Gly	Val	Trp	Ser	Leu	Ser	Leu	Pro	Ser	Cys	Leu	Leu	Ser	Leu		
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			20					25					30				
Ile	Gly	Pro	Gly	His	Pro	Ile	Arg	Ala	Leu	Val	Gly	Asp	Glu	Ala	Glu		
		35					40					45					
Leu	Pro	Cys	Arg	Ile	Ser	Pro	Gly	Lys	Asn	Ala	Thr	Cys	Met	Glu	Val		
	50					55					60						
Gly	Trp	Tyr	Arg	Ser	Pro	Phe	Ser	Arg	Val	Val	His	Leu	Tyr	Arg	Asn		
65					70					75					80		
Gly	Lys	Asp	Gln	Asp	Ala	Glu	Gln	Ala	Pro	Glu	Tyr	Arg	Gly	Arg	Thr		
				85					90					95			
Glu	Leu	Leu	Lys	Glu	Ser	Ile	Gly	Glu	Gly	Lys	Val	Ala	Leu	Arg	Ile		
			100					105					110				
Gln	Asn	Val	Arg	Phe	Ser	Asp	Glu	Gly	Gly	Tyr	Thr	Cys	Phe	Phe	Arg		
		115					120					125					
Asp	His	Ser	Tyr	Gln	Glu	Glu	Ala	Ala	Val	Glu	Leu	Lys	Val	Glu	Asp		
	130					135					140						
Pro	Phe	Tyr	Trp	Ile	Asn	Pro	Gly	Val	Leu	Ala	Leu	Ile	Ala	Leu	Val		
145					150					155					160		
Pro	Met	Leu	Leu	Leu	Val	Ser	Val	Gly	Leu	Val	Phe	Leu	Phe	Leu			
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<210> 13
 <211> 175

A041us.txt

<212> PRT

<213> Mouse

<400> 13

Met	Ala	Cys	Leu	Trp	Ser	Phe	Ser	Trp	Pro	Ser	Cys	Phe	Leu	Ser	Leu
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Leu	Leu	Leu	Leu	Leu	Leu	Gln	Leu	Ser	Cys	Ser	Tyr	Ala	Gly	Gln	Phe
			20					25					30		
Arg	Val	Ile	Gly	Pro	Gly	Tyr	Pro	Ile	Arg	Ala	Leu	Val	Gly	Asp	Glu
		35					40					45			
Ala	Glu	Leu	Pro	Cys	Arg	Ile	Ser	Pro	Gly	Lys	Asn	Ala	Thr	Gly	Met
	50					55					60				
Glu	Val	Gly	Trp	Tyr	Arg	Ser	Pro	Phe	Ser	Arg	Val	Val	His	Leu	Tyr
65					70					75					80
Arg	Asn	Gly	Lys	Asp	Ala	Glu	Gln	Ala	Pro	Glu	Tyr	Arg	Gly	Arg	Thr
				85					90					95	
Glu	Leu	Leu	Lys	Glu	Thr	Ile	Ser	Glu	Gly	Lys	Val	Thr	Leu	Arg	Ile
			100					105					110		
Gln	Asn	Val	Arg	Phe	Ser	Asp	Glu	Gly	Gly	Tyr	Thr	Cys	Phe	Phe	Arg
		115					120					125			
Asp	His	Ser	Tyr	Gln	Glu	Glu	Ala	Ala	Met	Glu	Leu	Lys	Val	Glu	Asp
	130					135					140				
Pro	Phe	Tyr	Trp	Val	Asn	Pro	Gly	Val	Leu	Thr	Leu	Ile	Ala	Leu	Val
145					150					155					160
Pro	Thr	Ile	Leu	Leu	Val	Ser	Val	Gly	Leu	Val	Phe	Leu	Phe	Leu	
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<211> 90

<212> DNA

<213> Chicken

<220>

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dgmykgrtrd gsdgndrtav tssdsgsysc
90

<210> 15

<211> 123

<212> PRT

<213> Homo sapien

<400> 15

Met	Ala	Ser	Ser	Leu	Ala	Phe	Leu	Leu	Leu	Asn	Phe	His	Val	Ser	Leu
1				5					10					15	

A041us.txt

```

Leu Leu Val Gln Leu Leu Thr Pro Cys Ser Ala Gln Phe Ser Val Leu
      20      25      30
Gly Pro Ser Gly Pro Ile Leu Ala Met Val Gly Glu Asp Ala Asp Leu
      35      40      45
Pro Cys His Leu Phe Pro Thr Met Ser Ala Glu Thr Met Glu Leu Lys
      50      55      60
Trp Val Ser Ser Leu Arg Gln Val Val Asn Val Tyr Ala Asp Gly Lys
      65      70      75      80
Glu Val Glu Asp Arg Gln Ser Ala Pro Tyr Arg Gly Arg Thr Ser Ile
      85      90      95
Leu Arg Asp Gly Ile Thr Ala Gly Lys Ala Ala Leu Arg Ile His Asn
      100      105      110
Val Thr Ala Ser Asp Ser Gly Gln Leu Glu Cys
      115      120

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<210> 16
 <211> 124
 <212> PRT
 <213> Bovine

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<400> 16
Met Ala Val Phe Pro Asn Ser Cys Leu Ala Gly Cys Leu Leu Ile Phe
  1      5      10      15
Ile Leu Leu Gln Leu Pro Lys Leu Asp Ser Ala Pro Phe Asp Val Ile
      20      25      30
Gly Pro Pro Glu Pro Ile Leu Ala Val Val Gly Glu Asp Ala Glu Leu
      35      40      45
Pro Cys Arg Leu Ser Pro Asn Val Ser Ala Lys Gly Met Glu Leu Arg
      50      55      60
Trp Phe Arg Glu Lys Val Ser Pro Ala Val Phe Val Ser Arg Glu Gly
      65      70      75      80
Gln Glu Gln Glu Gly Glu Glu Met Ala Glu Tyr Arg Gly Arg Val Ser
      85      90      95
Leu Val Glu Asp His Ile Ala Glu Gly Ser Val Ala Val Arg Ile Gln
      100      105      110
Glu Val Lys Ala Ser Asp Asp Gly Glu Tyr Arg Cys
      115      120

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<210> 17
 <211> 116
 <212> PRT
 <213> Homo sapien

```

<400> 17
Met Gly His Thr Arg Arg Gln Gly Thr Ser Pro Ser Lys Cys Pro Tyr
  1      5      10      15
Leu Asn Phe Phe Gln Leu Leu Val Leu Ala Gly Leu Ser His Phe Cys
      20      25      30
Ser Gly Val Ile His Val Thr Lys Glu Val Lys Glu Val Ala Thr Leu
      35      40      45
Ser Cys Gly His Asn Val Ser Val Glu Glu Leu Ala Gln Thr Arg Ile

```

A041us.txt

```

      50      55      60
Tyr Trp Gln Lys Glu Lys Lys Met Val Leu Thr Met Met Ser Gly Asp
65      70      75      80
Met Asn Ile Trp Pro Glu Tyr Lys Asn Arg Thr Ile Phe Asp Ile Thr
      85      90      95
Asn Asn Leu Ser Ile Val Ile Leu Ala Leu Arg Pro Ser Asp Glu Gly
      100      105      110
Thr Tyr Glu Cys
      115

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<210> 18
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 <212> PRT
 <213> Homo sapien

```

<400> 18
Met Gly Leu Ser Asn Ile Leu Phe Val Met Ala Phe Leu Leu Ser Gly
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Ala Ala Pro Leu Lys Ile Gln Ala Tyr Phe Asn Glu Thr Ala Asp Leu
      20      25      30
Pro Cys Gln Phe Ala Asn Ser Gln Asn Gln Ser Leu Ser Glu Leu Val
      35      40      45
Val Phe Trp Gln Asp Gln Glu Asn Leu Val Leu Asn Glu Val Tyr Leu
      50      55      60
Gly Lys Glu Lys Phe Asp Ser Val His Ser Lys Tyr Met Gly Arg Thr
65      70      75      80
Ser Phe Asp Ser Asp Ser Trp Thr Leu Arg Leu His Asn Leu Gln Ile
      85      90      95
Lys Asp Lys Gly Leu Tyr Gln Cys
      100

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<210> 19
 <211> 34
 <212> DNA
 <213> Homo sapien

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<400> 19
aactgcagcg gccgccatgg cctggatgct gttg
34

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<210> 20
 <211> 58
 <212> DNA
 <213> Homo sapien

```

<400> 20
atagtttagc ggccgctcag tgatggtggt gatggtggtc gactgtacca gccctag
58

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